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# M E M O R A N D U M

**DATE:** August 25, 2014

**TO:** Rose Longoria, Yakama Nation Fisheries

**FROM:** Bob Dexter, Aquatic Toxicologist

**SUBJECT:** Comments on Draft Section 2 of the Portland Harbor Feasibility Study

This section, dated 07/11/2014 of the draft FS was well written and provides useful information for remedy selection. In addition to reviewing Section 2, we also reviewed LWGs comments on development of PRGs and background levels and agree with EPA's responses to LWG's concerns.

Section 2.2.4. Development of Preliminary Remediation Goals. The text in a number of the RAO descriptions states that the goal is to achieve HQs "equal to one." However, the BERA identifies substances with HQs equal to one as posing unacceptable risk. These two seem to be inconsistent and should be clarified.

Section 2.2.4. Development of Preliminary Remediation Goals. Page 2-17, RAO 6 discussion: The text states that conservative PRGs were selected for each COC, except for DDE, but offers no explanation for why or how DDE was treated. Please explain.

Section 2.4.1.2: Monitored Natural Recovery: Sediment Deposition Rate: The selection of an estimated minimum deposition rate of at least 2.5 cm/year to determine that MNR would be effective seems arbitrary. This rate may be acceptable for screening technologies, but for the final remedy, MNR should only be selected where the estimated deposition rate would actually achieve the cleanup goal within a reasonable timeframe, i.e., a rate that would ensure that the contaminant concentrations in the mixed zone are below the relevant PRGs within a few years. The deposition rate should be site-specific, depending on the t=0 concentrations in the surface sediments, and could be fairly easily estimated using an assumed bioturbation rate.

Section 2.4.1.2: Monitored Natural Recovery: Surface to Subsurface Sediment Contaminant Concentration Ratios: Please provide the rationale for selecting subsurface to surface sediment concentration ratios less than 2 to indicate areas where MNR may not be effective.

Section 2.4.1.3 Enhanced Monitored Natural Recovery: EMNR Evaluation Screening Criteria: This section raises the issue of defining an "acceptable time frame." Is there a hard number that can be stated for the time frame?

Section 2.4.1.3 Enhanced Monitored Natural Recovery: EMNR Evaluation Screening Criteria: This section discusses the fact that EMNR relies on the deposition of clean material as the primary process. However, the deposition criterion presented is an estimated rate of +/- 2.5 cm/year, which suggests that EMNR could be screened in for an erosional area (i.e., -2.5 cm).

Therefore, since deposition must be effective, it would be better to limit screening for EMNR to areas with estimated rates of 0 to 2.5 cm/year or 2.5 cm/year similar to the MNR discussion.

Section 2.4.1.4 In-Situ Treatment: In –Situ Treatment Evaluation Screening Criteria: Paragraph 3: Please provide a citation for selecting the granulated activated carbon GAC application rate of 3% to 5%.

Section 2.4.1.4 In-Situ Treatment: In –Situ Treatment Evaluation Screening Criteria: Paragraph 4: A citation should be provided to support the assumption of 90% effectiveness of activated carbon, particularly since it would be expected that the GAC adsorption efficiency will vary among the contaminants. Further, please include citations demonstrating the GAC treatment remains effective for the long term.

Section 2.4.1.4 In-Situ Treatment: In –Situ Treatment Evaluation Screening Criteria: Paragraph 4: 1st Bullet: The text uses a negative (+/- 2.5 cm/year) deposition rate. See comment above.

Section 2.4.1.8.1 Ex-Situ Treatment Evaluation Screening Criteria: General Ex –Situ Treatment Implementability Concerns: 2nd Bullet: The text states, “To date, of the three ex-situ technologies selected for further evaluation, only stabilization/solidification has been implemented on a scale with a treatment production rate greater than 1 cubic yard/hour.” This is hard to believe. For example, there are likely incineration systems that would have a higher production rate.

Table 2.4-2 and Table 2.4-3: The Evaluation Criteria for Sediment Grain Size differs between these two tables (50% and 40%, respectively). Please provide an explanation for the difference between these criteria.

Table 2.4-2 and Table 2.4-3: The Surface to Subsurface Concentration Ratio is presented as 1.0, however the text presents a Subsurface to Surface ratio of 2 which would make this value 0.5. Also, the value should include an equal to or less than sign. The expression of this ratio should be consistent in the table.